

D1 rhodium, ruthenium, iridium, osmium and platinum, wherein the neighboring film substantially prevents voids due to electromigration of copper.

D2 3. (Twice Amended) A semiconductor device having a layered interconnection structure including a platinum film overlying a surface of a semiconductor substrate, wherein the layered interconnection structure includes the platinum film and a neighboring film located adjacent to the platinum film, the neighboring film having, as a primary constituent element thereof, an element selected from a group consisting of rhodium, ruthenium, iridium and osmium, wherein the neighboring film substantially prevents voids due to electromigration of the platinum.

D3 5. (Twice Amended) A semiconductor device having a layered interconnection structure including a platinum film overlying a surface of a semiconductor substrate, wherein the layered interconnection structure includes the platinum film and a neighboring film, adjacent the platinum film, located at at least one of (a) above the platinum film and (b) between the platinum film and the semiconductor substrate, the neighboring film including an element selected from a group consisting of rhodium, ruthenium, iridium and osmium, wherein the neighboring film substantially prevents voids due to electromigration of the platinum.

13. (Amended) A semiconductor device having a layered interconnection structure comprising:

D4 a semiconductor substrate;

an insulating film overlying a surface of the semiconductor substrate; and

a plug of conductor film electrically connecting the semiconductor substrate with the layered interconnection structure,

wherein the layered interconnection structure overlies the insulating film, and includes (1) a copper film, and (2) a neighboring film and (3) a diffusion barrier film located between the copper film and the insulating film, the diffusion barrier film being further than the neighboring film from the copper film, the neighboring film having as a primary constituent element thereof, an element selected from a group consisting of rhodium, ruthenium, iridium, osmium and platinum, and the diffusion barrier film including at least one material selected from the group consisting of titanium nitride, tungsten and tantalum.

D4
Cont.

14. (Amended) A semiconductor device having a layered interconnection structure comprising:

a semiconductor substrate; and

an insulating film overlying a surface of the semiconductor substrate,

wherein the layered interconnection structure overlies the insulating film, and includes (1) a copper film, and (2) a neighboring film and (3) a diffusion barrier film located between the copper film and the insulating film, the diffusion barrier film being further than the neighboring film from the copper film, the neighboring film having as a primary constituent element thereof, an element selected from a group consisting of rhodium, ruthenium, iridium, osmium and platinum, and the diffusion barrier film including at least one material selected from the group consisting of titanium nitride, tungsten and tantalum.